

Claims

1. A method of producing a porous solid,
characterized by the steps of:
- 5 (i) preparing a fluid mixture comprising a first
phase which includes one or more inorganic
ionic components, and at least one second
phase, the first phase and the second phase
being essentially immiscible in the solid
10 state,
- (ii) cooling the fluid mixture to a temperature
below the solidification point in order to
form a solid phase mixture comprising at
least one first crystalline phase and a
15 second phase, and
- (iii) removing the second phase.
2. The method as claimed in claim 1,
characterized in that
20 the cooling is performed under non-segregating
conditions.
3. The method as claimed in any one of claims 1 or 2,
characterized in that
the fluid mixture has an essentially eutectic
composition.
4. The method as claimed in any one of claims 1 to 3,
characterized in that
30 the second phase is removed in step (iii) by means
of solvent extraction.
5. The method as claimed in any one of claims 1 to 4,
characterized in that
35 the second phase is a substance which is soluble
in aqueous media.

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- 5 6. The method as claimed in any one of the preceding claims,
characterized in that
the first phase is a water-insoluble salt.
- 10 7. The method as claimed in any one of the preceding claims,
characterized in that
the second phase is a water-soluble salt which is
able to form a eutectic mixture with the first
phase.
- 15 8. The method as claimed in any one of the preceding claims,
characterized in that
the first phase comprises AgCl and the second
phase comprises an alkali metal halide.
- 20 9. The method as claimed in claim 8,
characterized in that
the mixture is formed from 70 mol% of AgCl and
30 mol% of KCl.
- 25 10. Porous ion-conducting solid obtainable via a
method as claimed in any one of claims 1 to 9.
- 30 11. An electrochemical cell which contains as the
electrolytes a porous solid as claimed in claim
10.
- 35 12. The electrochemical cell as claimed in claim 11,
characterized in that
the pores of the solid are filled with a fluid.
13. The electrochemical cell as claimed in claim 12,
characterized in that
the fluid is a liquid electrolyte.

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14. The use of a solid or an electrochemical cell as claimed in any one of claims 11 to 13 as a sensor.

5 15. The use as claimed in claim 14 for the determination of gases.

16. The use of a solid as claimed in claim 10 in separation technology or in catalysis.

1. 3. 5. 7. 9. 11. 13. 15. 17. 19. 21. 23. 25. 27. 29. 31. 33. 35. 37. 39. 41. 43. 45. 47. 49. 51. 53. 55. 57. 59. 61. 63. 65. 67. 69. 71. 73. 75. 77. 79. 81. 83. 85. 87. 89. 91. 93. 95. 97. 99.